

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.: MO-0106658

Owner: City of Springfield
Address: PO Box 8368, Springfield, MO 65801

Continuing Authority: Same as above
Address: Same as above

Facility Name: Springfield Sanitary Landfill
Address: State Highway 13, Route 2, Willard, MO 65781

Legal Description: SW $\frac{1}{4}$, NE $\frac{1}{4}$, Sec. 21, T31N, R22W, Greene County

Receiving Stream & Basin: Unnamed Tributary to the North Dry Sac River (U)
First Classified Stream and ID: North Dry Sac River (P) (01392)
USGS Basin & Sub-watershed No.: (10290106-050003)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

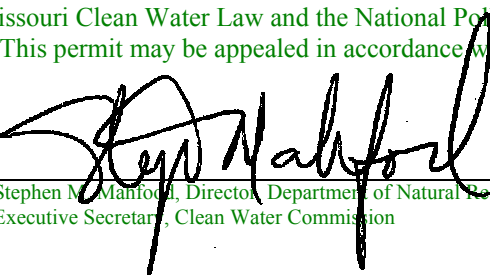
FACILITY DESCRIPTION

See page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

March 19, 2004
Effective Date

March 18, 2009
Expiration Date
MO 780-0041 (10-93)


Stephen M. Mahford, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

Jim Hull, Director of Staff, Clean Water Commission

FACILITY DESCRIPTION (continued)

Outfall #001 - Landfill - SIC #4953

Stormwater discharge from a sanitary landfill including brush and yard waste composting and vegetative waste composting operations and soil treatment cells for the aerated remediation of soils contaminated with virgin petroleum products, all located within the permitted boundary of the landfill. Outfall #001 (the sample point) is located at the property line.

Stormwater is treated in a sedimentation basin sized to treat 470 CFS for a 25 year 50 minute storm. Flow is 91.476 million gallons for a one in ten year 24 hour storm event.

Instream Monitoring

Upstream and downstream monitoring points.

Upstream located at NE $\frac{1}{4}$, NE $\frac{1}{4}$, T31N, R22W.

Downstream located at center of Sec. 9, T31N, R22W.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 3 of 11	
					PERMIT NUMBER MO-0106658	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Flow	MGD	*			once/month	instantaneous estimate
Rainfall	inches	*		*	daily measurement	**
Biochemical Oxygen Demand ₅	mg/L	45		30	once/month	**
BETX	mg/L	0.75		0.75	once/month	**
Chemical Oxygen Demand	mg/L	120		90	once/month	**
Total Suspended Solids	mg/L	75		50	once/month	**
Settleable Solids	mL/L/hr	1.5		1.0	once/month	**
Total Dissolved Solids	mg/L	*		*	once/month	**
Conductivity (Specific Conductance)	micromhos /cm 25°C	*		*	once/month	**
Chloride plus Sulfates	mg/L	1000		*	once/month	**
Iron, Total Recoverable	mg/L	*		*	once/month	**
pH - Units	SU	***		*	once/month	**
Calcium	mg/L	*		*	once/month	**
Fluoride	mg/L	*		*	once/month	**
Total Hardness	mg/L	*		*	once/month	**
Barium, Total Recoverable	mg/L	*		*	once/month	**
Boron, Total Recoverable	mg/L	*		*	once/month	**
Cadmium, Total Recoverable	mg/L	0.018		0.012	once/month	**
Chromium, Total Recoverable	mg/L	0.062		0.050	once/month	**
Cobalt, Total Recoverable	mg/L	*			once/month	**
Copper, Total Recoverable	mg/L	0.03		0.02	once/month	**
Sodium, Total Recoverable	mg/L	*		*	once/month	**
Ammonia as N	mg/L	****		****	once/month	**
Nitrate & Nitrite as N	mg/L	*		*	once/month	**
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE <u>May 28, 2004</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Part I</u> STANDARD CONDITIONS DATED <u>October 1, 1980</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 4 of 11	
					PERMIT NUMBER MO-0106658	
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		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u> (continued)						
Phosphorus, Total Recoverable	mg/L	*		*	once/month	**
Mercury, Total Recoverable	mg/L	0.0024		0.0005	once/month	**
Arsenic, Total Recoverable	mg/L	0.03		0.02	once/month	**
Lead, Total Recoverable	mg/L	0.02		*	once/month	**
Selenium, Total Recoverable	mg/L	0.02		*	once/month	**
Silver, Total Recoverable	mg/L	0.008		*	once/month	**
Manganese, Total Recoverable	mg/L	*		*	once/month	**
Magnesium, Total Recoverable	mg/L	*		*	once/month	**
Zinc, Total Recoverable	mg/L	0.15		0.10	once/month	**
Nickel, Total Recoverable	mg/L	0.15		0.10	once/month	**
Total Organic Carbon	mg/L	*		*	once/month	**
Total Organic Halogens	mg/L	*		*	once/month	**
Antimony, Total Recoverable	mg/L	*		*	once/month	**
Beryllium, Total Recoverable	mg/L	*		*	once/month	**
Thallium, Total Recoverable	mg/L	*		*	once/month	**
Vanadium, Total Recoverable	mg/L	*		*	once/month	**
Sulfate	mg/L	*		*	once/month	**
Phenols	mg/L	0.15		0.10	once/month	**
Oil and Grease	mg/L	15		10	once/month	**
Temperature	°C	*			once/month	**
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>May 28, 2004</u> .						
Whole Effluent Toxicity (WET) Test	% Survival	Special Condition #5		once/year	grab	
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2004</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
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					PAGE NUMBER 5 of 11	
A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PERMIT NUMBER MO-0106658	
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		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Instream Monitoring</u> - Upstream and Downstream Monitoring Points						
Total Suspended Solids	mg/L	*		*	once/month	grab
pH - Units	SU	*		*	once/month	grab
Settleable Solids	mL/L/hr	*		*	once/month	grab
Cadmium, Total Recoverable	mg/L	*		*	once/month	grab
Cadmium, Dissolved	mg/L	*		*	once/month	grab
Chromium, Total Recoverable	mg/L	*		*	once/month	grab
Chromium, Dissolved	mg/L	*		*	once/month	grab
Lead, Total Recoverable	mg/L	*		*	once/month	grab
Lead, Dissolved	mg/L	*		*	once/month	grab
Zinc, Total Recoverable	mg/L	*		*	once/month	grab
Zinc, Dissolved	mg/L	*		*	once/month	grab
Phenols	mg/L	*		*	once/month	grab
Conductivity (Specific Conductance)	micromhos /cm 25°C	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>May 28, 2004</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE <u>FOAM</u> IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
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MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * Monitoring requirement only.
- ** Grab samples shall be collected that are representative of actual discharges at the site boundary.
- *** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.
- **** The discharge shall not cause the instream ammonia level to exceed the values in Table B 10 CSR 20-7.031, AChronic Criteria for Total Ammonia - Limited Warm-Water Fishery."
- ***** Sample once per quarter in the months of March, June, September, and December.

C. SPECIAL CONDITIONS

1. Outfall #001 shall be monitored at the north end of the property. The sample point must be downstream of all contributing runoff points from the landfill property.
2. All leachate shall be handled in accordance with the Solid Waste Disposal Area Operating Permit. Report of Approval of Plans and Specifications (with conditions) so that there is no discharge or runoff.

C. SPECIAL CONDITIONS (continued)

3. The discharge shall not cause bottom deposits, unsightly color or turbidity or measurable increases in non-filterable residue in the receiving stream or the North Dry Sac River.
4. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (e) There shall be no significant human health hazard from incidental contact with the water;
 - (f) There shall be no acute toxicity to livestock or wildlife watering;
 - (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.
5. Report as no-discharge when a discharge does not occur during the report period.
6. All design and operating specifications and all Solid Waste Management Program approval conditions pertaining to water quality are hereby made a part of this permit and shall apply throughout the life of this permit without regard to other conditions, permits, occurrences, etc.
7. All samples shall be collected at such time as to be representative of the entire discharge event.
8. This permit may be reopened and modified, or alternatively revoked and reissued, to:
 - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

C. SPECIAL CONDITIONS (continued)

9. Two in stream monitoring points are required. Monitoring for all effluent parameters shall be conducted at both locations on the North Dry Sac River. The first monitoring point shall be immediately upstream of the confluence of the receiving tributary and the North Dry Sac, with sample collection done upstream of the mixing zone. The second point shall be on the south bank of the North Dry Sac at the west edge of the Highway 13 right of way.
10. This permit does not allow the discharge of storm water that has contacted the open face of the landfill. This permit does not allow the discharge of untreated leachate. All leachate shall be handled in accordance with the Solid Waste Disposal Area Operating Permit, Report of Approval of Plans and Specifications (with conditions).
11. Samples of leachate from this facility shall be analyzed semi-annually for those pollutants listed on Missouri Department of Natural Resources Application for Discharge Permit Forms C and D. A copy of the analysis shall be submitted to the Department, the first report is due October 1, 1997. When sufficient background data has been accumulated, the Department may reduce the number of pollutants analysis required by this special condition. After sample analysis is received by the Department, this permit may be modified to include permit effluent limits for additional pollutants that have been found present in the leachate and to add to or modify this schedule of compliance as may be appropriate.
12. The permittee shall submit an annual report describing all incidents where radioactive materials have been accepted by the landfill. The report shall include the date of the acceptance, the type of isotope involved, the level of radioactivity detected and the name and address of all agencies notified by the permittee that the acceptance occurred. Also included in the annual report shall be the following information on any load that activates the alarm for radioactivity: date and time alarm activated, the name of the company hauling the load that activated the alarm, any type of truck identification (i.e., truck number, truck license plate number, etc.) on the truck that activated the alarm and the level of radioactivity. The first report is due January 28, 2000. This condition shall not relieve the permittee of responsibility for notifying all appropriate agencies immediately upon becoming aware that radioactive material is present at the landfill.
13. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (4) The level established in Part A of the permit by the Director.
- (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

C. SPECIAL CONDITIONS (continued)

14. All discharges shall comply with the Missouri Water Quality Standards, 10 CSR 20-7.031, Section (3)(C), which states (Waters shall be free from substance in sufficient amounts to cause unsightly color or turbidity...", and Section (4)(G), which states "Water contaminants shall not cause or contribute to turbidity or color that will cause substantial visible contact with the natural appearance of the stream...".
15. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#001	100%	Annually	grab	April

(a) Test Schedule and Follow-Up Requirements

- (1) Perform a single-dilution test in the months and at the frequency specified above. If the effluent passes the test, do not repeat the test until the next test period.
Submit test results along with complete copies of the test reports as received from the laboratory within 30 calendar days of availability to the WPP, Water Quality Monitoring and Assessment Section, P.O. Box 176, Jefferson City, MO 65102.
- (2) If the effluent fails the test, a multiple dilution test shall be performed within 30 calendar days, and biweekly thereafter, until one of the following conditions are met:
 - (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
 - (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
- (3) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WPP, Water Quality Monitoring and Assessment Section, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
- (4) Additionally, the following shall apply upon failure of the third test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact WPP, Water Quality Monitoring and Assessment Section to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPP within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
- (5) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

C. SPECIAL CONDITIONS (continued)

15. Whole Effluent Toxicity (WET) (continued)

(a) Test Schedule and Follow-Up Requirements (continued)

- (6) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
- (7) All failing test results shall be reported to WPP, Water Quality Monitoring and Assessment Section, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.
- (8) When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.
- (9) Submit a concise summary of all test results with the annual report.

(b) PASS/FAIL procedure and effluent limitations:

- (1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.
- (2) To pass a multiple-dilution test:
 - (a) the computed percent effluent at the edge of the zone of initial dilution, Acceptable Effluent Concentration (AEC), must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; or,
 - (b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is an effluent limit violation.

(c) Test Conditions

- (1) Test Type: Acute Static non-renewal
- (2) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
- (3) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
- (4) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

C. SPECIAL CONDITIONS (continued)

15. Whole Effluent Toxicity (WET) (continued)

(c) Test Conditions (continued)

- (5) Single-dilution tests will be run with:
 - (a) Effluent at the AEC concentration;
 - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) reconstituted water.
- (6) Multiple-dilution tests will be run with:
 - (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
 - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) reconstituted water.
- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls